

AMENDMENTS TO THE CLAIMS:

Claims 3, 6, 8, 10, 12, 14, 17-20, 27, 32-36 are canceled without prejudice or disclaimer. Claims 4-5, 7, 9, 11, 13, 15-16, 21, 24-26, 28-31 are amended. Claim 37 is added. The following is the status of the claims of the above-captioned application, as amended.

Claim 1. (Original) A variant of a parent protease, comprising a substitution in at least one position of at least one region selected from the group of regions consisting of:

6-18; 22-28; 32-39; 42-58; 62-63; 66-76; 78-100; 103-106; 111-114; 118-131; 134-136; 139-141; 144-151; 155-156; 160-176; 179-181; and 184-188; wherein

- (a) the variant has protease activity; and
- (b) each position corresponds to a position of amino acids 1 to 188 of SEQ ID NO: 2; and
- (c) the variant has a percentage of identity to amino acids 1 to 188 of SEQ ID NO: 2 of at least 60%.

Claim 2. (Original) The variant of claim 1 which comprises a substitution in at least one of the following positions: 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 22; 23; 24; 25; 26; 27; 28; 32; 33; 34; 35; 36; 37; 38; 39; 42; 43; 44; 45; 46; 47; 48; 49; 50; 51; 52; 53; 54; 55; 56; 57; 58; 62; 63; 66; 67; 68; 69; 70; 71; 72; 73; 74; 75; 76; 78; 79; 80; 81; 82; 83; 84; 85; 86; 87; 88; 89; 90; 91; 92; 93; 94; 95; 96; 97; 98; 99; 100; 103; 104; 105; 106; 111; 112; 113; 114; 118; 119; 120; 121; 122; 123; 124; 125; 126; 127; 128; 129; 130; 131; 134; 135; 136; 139; 140; 141; 144; 145; 146; 147; 148; 149; 150; 151; 155; 156; 160; 161; 162; 163; 164; 165; 166; 167; 168; 169; 170; 171; 172; 173; 174; 175; 176; 179; 180; 181; 184; 185; 186; 187; and/or 188.

Claim 3. (Cancelled)

Claim 4. (Currently amended) The variant of claim 32, which comprises at least one of the following substitutions: 6C; 7P; 8C; 9C; 10E,D; 12E,D; 13E,D,P; 16C; 17C; 18C; 22A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y; 23A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; 24C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y; 25C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y; 26A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 27A,C,D,E,F,G,H,I,K,L,M,N,P,R,S,T,V,W,Y; 28A,C,D,E,F,G,H,I,K,L,M,N,Q,R,S,T,V,W,Y; 32C; 33C; 37C; 39R,K; 42E,D; 43A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,W,Y; 44A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,V,W,Y; 45A,C,D,E,F,G,H,K,L,M,N,P,Q,R,S,T,V,W,Y; 46A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 47A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; 48A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y;

49A,C,D,E,F,G,H,I,K,L,M,N,P,S,V,W,Y; 50A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 52C; 55C;
56R,K; 58E,D; 62C; 63C; 66A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y;
67A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 68A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
69A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y; 70A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y;
71A,C,D,E,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 72A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
73A,C,D,E,F,G,H,I,K,M,N,P,Q,R,S,T,V,W,Y; 74A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
75A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; 76C; 78A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y;
79A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y; 80A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W;
81A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; 82A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,V,W,Y;
83A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 84A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y;
85A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W; 86C,D,E,F,G,H,I,K,L,M,N,P,R,S,T,V,W,Y;
87A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,V,W,Y; 88A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,W,Y;
89C,D,E,F,G,H,I,K,L,M,N,P,Q,R,V,W,Y; 90A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 92P,R,K; 93P;
94C,P; 95E,D; 96E,D,P; 97R,K; 98P; 99R,K; 103C; 105C,P; 106C; 111R,K; 113E,D; 118R,K;
120E,D; 122K; 124R,K; 125P; 127R,K; 129E,D; 130E,D; 134C; 135P; 136P; 139C; 140E,D; 141C;
144C; 145C; 146C; 147W; 148C; 149C; 150E,D; 151P,E,D; 155C; 156C;
160A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 161A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y;
162A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 163A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y;
164A,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 165A,C,D,E,F,G,H,I,K,L,M,N,P,Q,T,V,W,Y;
166A,C,D,E,G,H,I,K,L,M,N,P,Q,R,S,W,Y; 167A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y;
168A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; 169A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
170A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y; 172C; 173C; 174P; 175P; 176P; 180R,K; 181R,K;
184P; 187P; and/or 188R,K.

Claim 5. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following pairs of substitutions: 6C+103C; 8C+105C; 76C+85C; 94C+149C; 55C+63C; 16C+145C; 33C+144C; 62C+173C; 106C+141C; 9C+17C; 18C+156C; 32C+144C; 37C+52C; 67C+71C; 134C+170C; 139C+163C; 146C+148C; and/or 155C+172C.

Claim 6. (Cancelled)

Claim 7. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following substitutions: 81P; 82P; 151P; 176P; 24P; 25P; 92P; 93P; 94P; 96P; 98P; 105P; 136P; 184P; 187P; 174P; 7P; 13P; 23P; 27P; 125P; 135P; and/or 175P.

Claim 8. (Cancelled)

Claim 9. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following substitutions: 95E,D; 42E,D; 84E,D; 96E,D; 47E,D; 46E,D; 150E,D; 70E,D; 13E,D; 140E,D; 10E,D; 151E,D; 129E,D; 130E,D; 166E,D; 161E,D; 120E,D; 82E,D; 58E,D; 12E,D; 81E,D; 69E,D; 113E,D; 89E,D; and/or 160E,D.

Claim 10. (Cancelled)

Claim 11. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following substitutions: 124R,K; 72R,K; 97R,K; 127R,K; 56R,K; 122R,K; 181R,K; 180R,K; 25R,K; 92R,K; 39R,K; 99R,K; 111R,K; 24R,K; 118R,K; 162R,K; and/or 188R,K.

Claim 12. (Cancelled)

Claim 13. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following substitutions: 147W; 43W.

Claim 14. (Cancelled)

Claim 15. (Currently amended) The variant of ~~any one of claims 1-4~~ claim 1 which comprises at least one of the following substitutions: 6C; 8C; 13E,D; 16C; 24P; 25K,P,R; 33C; 42E,D; 46D,E; 47D,E; 55C; 56R,K; 62C; 63C; 70D,E; 72K,R; 76C; 81P; 82P; 84D,E; 85C; 92P,R,K; 93P; 94C,P; 95E,D; 96E,D,P; 97R,K; 98P; 103C; 105C,P; 106C; 122R,K; 124R,K; 127R,K; 136P; 140E,D; 141C; 144C; 145C; 149C; 150E,D; 151P; 173C; 176P; 180R,K; 181R,K; 184P; and/or 187P; preferably 47D, 49K, 92K, 127R, and/or 166A.

Claim 16. (Currently amended) The variant of ~~any one of claims 1-3~~ claim 1, which comprises at least one of the following substitutions: G6C; L7P; A8C; Y9C; T10E,D,Y; G12E,D; G13E,D,P; S16C; V17C; G18C; T22A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y; N23A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; A24C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y (preferably A24S); A25C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y (preferably A25S);

G26A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; Q27A,C,D,E,F,G,H,I,K,L,M,N,P,R,S,T,V,W,Y;
 P28A,C,D,E,F,G,H,I,K,L,M,N,Q,R,S,T,V,W,Y; T32C; A33C; G37C; R38T; V39R,K; Q42E,D,G,P;
 V43A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,W,Y; T44A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y
 (preferably T44S); I45A,C,D,E,F,G,H,K,L,M,N,P,Q,R,S,T,V,W,Y;
 G46A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; N47A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y;
 G48A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; R49A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y
 (preferably R49T,Q); G50A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; V51T; F52C; E53Q; Q54N,R;
 S55C; V56I,R,K; P58E,D; A62C,S; A63C; R66A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y;
 G67A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; T68A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
 S69A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y; N70A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y;
 F71A,C,D,E,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; T72A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
 L73A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; T74A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
 N75A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; L76C; S78A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y;
 R79A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y; Y80A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W;
 N81A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y; T82A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y
 (preferably T82S); G83A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y;
 G84A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; Y85A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W;
 A86C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y (preferably A86Q);
 T87A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y (preferably T87S);
 V88A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,W,Y; A89C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y
 (preferably A89T,S); G90A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; H91T,S; N92P,R,K,S; Q93P;
 A94C,P; P95A,E,D; I96A,E,D,P; G97R,K; S98P; S99A,Q,R,K; V100I; S103C; S105C,P; T106C;
 C111R,K; T113E,D; I114V; G118N,R,K; S120T,E,D; S122R,K; P124R,K; E125P,Q; T127R,K;
 T129E,D,Y,Q; N130E,D,S; M131L; T134C; T135P,N; V136P; E139C; P140E,D; G141C; G144C;
 G145C; S146C; Y147F,W; I148C; S149C; G150E,D; T151P,E,D,S; G155C; V156C;
 G160A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; S161A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,T,V,W,Y;
 G162A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; N163A,C,D,E,F,G,H,I,K,L,M,P,Q,R,S,T,V,W,Y;
 C164A,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; R165A,C,D,E,F,G,H,I,K,L,M,N,P,Q,S,T,V,W,Y
 (preferably R165S); T166A,C,D,F,E,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y (preferably T166V,F);
 G167A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y; G168A,C,D,E,F,H,I,K,L,M,N,P,Q,R,S,T,V,W,Y;
 T169A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y; T170A,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S,V,W,Y;
 F171Y; Y172C; Q173C; E174P; V175P; T176N,P; V179I,L; N180R,K,S; S181R,K; V184L,P;
 R185T; L186I; R187P; and/or T188R,K; preferably at least one of the following:

T10Y, A25S, R38T, Q42P, T44S, N47D, R49K, Q54R, V56I, A62S, T82S, N92K, S99A, G118N, S120T, S122R, E125Q, T127R, T129Y, N130S, M131L, R165S, T166A, F171Y, T176N, V179L, N180S, V184L, and/or R185T.

Claims 17-20. (Cancelled)

Claim 21. (Currently amended) An isolated nucleic acid sequence comprising a nucleic acid sequence which encodes the protease variant of ~~any one of claims 1-20~~ claim 1.

Claim 22. (Original) A nucleic acid construct comprising the nucleic acid sequence of claim 21 operably linked to one or more control sequences that direct the production of the protease variant in a suitable expression host.

Claim 23. (Original) A recombinant expression vector comprising the nucleic acid construct of claim 22.

Claim 24. (Currently amended) A recombinant host cell comprising the nucleic acid construct of claim 22, ~~and/or the expression vector of claim 23~~.

Claim 25. (Currently amended) A method for producing the protease variant of ~~any one of claims 1-20~~ claim 1, the method comprising:
(a) cultivating the host cell of claim 24 to produce a supernatant comprising the variant; and (b) recovering the variant.

Claim 26. (Currently amended) A transgenic plant, or plant part, capable of expressing a protease variant of ~~any one of claims 1-20~~ claim 1.

Claim 27. (Cancelled)

Claim 28. (Currently amended) An animal feed additive comprising at least one protease variant of ~~any one of claims 1-20~~ claim 1, and
(a) at least one fat soluble vitamin;
(b) at least one water soluble vitamin; and/or
(c) at least one trace mineral.

Claim 29. (Currently amended) An animal feed composition having a crude protein content of 50 to 800 g/kg and comprising the protease variant of ~~any one of claims 1-20~~claim 1.

Claim 30. (Currently amended) A method for improving the nutritional value of an animal feed, wherein the protease variant of ~~any one of claims 1-20~~claim 1, ~~and/or the composition of any one of claims 28 or 29~~ is added to the feed.

Claim 31. (Currently amended) A method for the treatment of proteins, comprising the step of adding the protease variant of ~~any one of claims 1-20~~ claim 1, ~~and/or the composition of any one of claims 28-29~~ to at least one protein or protein source.

Claims 32-36. (Cancelled)

Claim 37. (New) A detergent composition comprising the variant of claim 1 and a surfactant.